Program Approval Form

For approval of new programs and deletions or modifications to an existing program.

Action Requested:

- [ ] Create New (SCHEV approval required except for minors)
- [ ] Inactivate Existing
- [x] Modify Existing (check **ALL** that apply)
  - [ ] Title (SCHEV approval required except for minors)
  - [x] **Concentration** (Choose one): [x] *Add* [ ] *Delete* [ ] *Modify*
  - [x] Degree Requirements
  - [ ] Admission Standards/ Application Requirements
  - [ ] Other Changes: _____

Type (Check one)**:**

- [ ] B.A. [x] B.S. [ ] Minor
- [ ] Master's
- [ ] Ph.D.
- [ ] Undergraduate Certificate*
- [ ] Graduate Certificate*
- [ ] Bachelor's/Accelerated Master's [ ] Other:

College/School:	College of Science	**Department:**	Biology		
Submitted by:	Larry Rockwood	**Ext:**	3-1031	**Email:**	lrockwoo@gmu.edu

Effective Term: Fall 2017

Please note: For students to be admitted to a new degree, minor, certificate or concentration, the program must be fully approved, entered into Banner, and published in the University Catalog.

Justification: (attach separate document if necessary)

See attached

	Existing	New/Modified
Program Title: (Required) Title must identify subject matter. Do not include name of college/school/dept.	Medical Laboratory Science BS	
Concentration(s):		Microbiology
Admissions Standards / Application Requirements: (Required only if different from those listed in the University Catalog)		NA
Degree Requirements: Consult University Catalog for models, attach separate document if necessary using track changes for modifications		See attached
Courses offered via distance: (if applicable)		NA
TOTAL CREDITS REQUIRED:		30

***For Certificates Only:** Indicate whether students are able to pursue on a [x] **Full-time basis** [x] **Part-time basis**

Approval Signatures

Department Date College/School Date

If this program may impact another unit or is in collaboration with another unit at Mason, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

For Undergraduate Programs only

Undergraduate Council Member Provost Office Undergraduate Council Approval Date

For Graduate Programs Only

Graduate Council Member Provost Office Graduate Council Approval Date

For Registrar Office's Use Only: Received_____Banner_____Catalog_____

revised 9/2/2016

Program Proposal Submitted to the College of Science Curriculum Committee (COSCC)

The form above is processed by the Office of the University Registrar. This second page is for the COSCC's reference. Please complete the applicable portions of this page to clearly communicate what the form above is requesting.

FOR ALL PROGRAMS (required)

Program Title: Concentration in Microbiology

Date of Departmental Approval: November 18, 2016

FOR INACTIVATED PROGRAMS (required if inactivating a program)

- Reason for Inactivation:

FOR MODIFIED PROGRAMS (required if modifying a program)

- Summary of the Modification:
- Text before Modification (title, degree requirements, etc.):
- Text after Modification (title, degree requirements, etc.):
- Reason for the Modification:

FOR NEW PROGRAMS (required if creating a new program)

Reason for the New Program: The Medical Laboratory Science (MLAB) degree program addresses the growing national demand for trained medical laboratory scientists. It is our mission for students to gain the skills, knowledge, motivation, and insight through career-oriented laboratory education. At present the MLAB program only offers training as a generalist, meaning that once they leave GMU they will be able to take the board certification test and practice in any area of a hospital or laboratory. However some of our students would prefer to work in one particular area of the laboratory science. Offering a concentration in microbiology would allow for students to do their clinical rotations specifically in this area. At the end of their training they would be able to take the board certification test in Microbiology. One of our Affiliated Clinics, Quest Diagnostics, is prepared to offer this concentration for us during the 4th clinical year required for the BS Degree in Medical Laboratory Science.

- Relationship to Existing Programs:
  NA
- Relationship to Existing Courses:
  NA
- Semester of Initial Offering:
  Fall 2017
- Insert Tentative SCHEV Proposal Below

Department of Biology
4400 University Drive, MS 3E1, Fairfax, Virginia 22030
Phone: 703-993-1050; Fax: 703-993-1046

November 14, 2016

Proposal for a New Concentration within the BS in Medical Laboratory Science

Title: Concentration in Microbiology

Justification

Medical laboratory science (MLS) is the use of clinical laboratory tests to detect, diagnose, monitor, and treat disease. Medical laboratory scientists (formerly known as medical technologists) are laboratory professionals who are part of the medical team of specialists who work together to determine the presence, extent, or absence of disease. Over 70% of all medical decisions are based on medical laboratory scientist's results. The Medical Laboratory Science Program provides students with an education in clinical laboratory science and prepares graduates to become certified medical laboratory scientists (MLS). In addition MLS programs are highly completive and are generally only able to train 4-12 students per year due to one-on-one training. In order to address the increased need in medical laboratory scientists with the aging population and the overall lack of clinical training programs offering a generalist degree we are proposing two new concentrations. These concentration would allow students more students to become certified MLSs in their chosen field.

Curriculum
In addition to the courses required for all students earning the BS degree in Medical Laboratory Science, the following will be required for 30 credits.

Microbiology Concentration

<u>Description:</u> The Technologist Training Program is a pathway leading to eligibility for categorical certification as a Certified Technologist by the American Society for Clinical Pathology (ASCP) Board of Certification (BOC). The course is one year long, consisting of about 20% classroom and 80% hands-on laboratory experience. Instructors include the expert clinical scientists and technologists of Quest Diagnostics, Chantilly, Virginia.

The following two topics will be covered under MLAB 401

A) Introduction to CLS and Laboratory Operations (Tech 101) **MLAB 401**
This course is a brief introduction to the Clinical Laboratory Science professions and Laboratory Operations. Topics include Introduction to Laboratory Operations, Pre-analytics and Specimen Types, Quality Management Concepts, Quality Control, Laboratory Professions, Professional Ethics, Laboratory Mathematics, Proper use of Laboratory Equipment, Introduction to Laboratory Instrumentation.

B) Board Exam Preparation
This course is a structured review and practice in preparation for the American Society for Clinical Pathology Technologist in Microbiology Board of Certification Exam. Practice tests and questions from

a variety of published and authoritative sources are used to reinforce the content of the Technologist in Microbiology program.

The following topics are covered under MLAB 405

Introduction to Clinical Microbiology
This course is a brief introduction to the discipline of Clinical Microbiology, and laboratory diagnostic techniques. Topics include: Overview of Microbiology Theory, Methods and Applications, Instrumentation, Staining, and Media ,Immunology, Serology, and Molecular Diagnostics,

Medical Virology
This course is a survey of the characteristics, pathogenicity, and laboratory diagnosis of important human viruses. Topics include viral taxonomy and classical virology. Special emphasis is placed on the epidemiology and the laboratory's role in influenza pandemics.

Medical Mycology
This course is a comprehensive presentation of medically important fungi. Emphasis is placed on clinical presentation and laboratory identification of pathogenic species and opportunistic pathogens. Topics include general mycology methods, yeasts, susceptibility testing, molds (Hyaline, Mucor, Dematiaceous), Dermatophytes, Systemic infections, and Pneumocystis

Medical Parasitology
This course is a comprehensive presentation of human parasites. Emphasis is placed on clinical presentation and laboratory identification. Topics include Flagellates, Ciliates, Coccidians, Malaria and Babesia, Other Blood Born and Tissue Born parasites, Nematodes, Cestodes, Trematodes, and Arthropods.

Molecular Detection of Infectious Disease
This course examines the advances in using molecular methods to detect human infectious disease. Careful attention is given to the comparison of molecular technologies with traditional microbiology methods. Topics include molecular methods and applications, including PCR, sequencing, TMA, and PEGE; specimens of choice, sample preparation, Quality Control, primer selection; Molecular methods in selecting antimicrobial agents; molecular epidemiology, and target organisms: fungi, bacteria, parasites, and viruses.

Medical Bacteriology
This course is a comprehensive presentation of bacteria isolated in the clinical laboratory. Emphasis is placed on the laboratory identification of isolates from a variety of specimen sources, and pathogenic species. Topics include Instrumentation and MALDI, Gram Positive Cocci, Gram Positive Baccili, Enterics, non-fermenters, *Moraxella, Neisseria, Pasteurella, Haemophilus and HACEK, Camphylobacter, Helicobacter, Legionella*, CDC Select Agents, *Chlamdydia, Mycoplasm, Ureaplasm*, Spirochetes, Anaerobes, Antibiotics and Susceptibility testing, and Acid Fast Bacilli.

Microbiology Clinical Correlations
Designed as the capstone for the Technologist in Microbiology program, this course takes a body system view of the pathogenicity of infectious disease. Attention is given to integrating clinical presentation and case history to laboratory investigation and diagnosis. Topics include UTI/Genital, Food Borne/GI, Cystic Fibrosis, Blood, CSF, Body Fluids, and Wounds.